

What is claimed is:

1. In a bearing apparatus for supporting a shank portion of a pinion shaft having a pinion gear at one end, the bearing apparatus for supporting the pinion shaft, comprising:

5 a double row angular contact ball bearing with vertex of contact angles outside of bearing,

wherein grease is filled in a bearing internal space sealed with seals equipped at both ends in a shaft direction.

10 2. The bearing apparatus for supporting the pinion shaft according to claim 1, wherein said double row angular contact ball bearing with vertex of contact angles outside of bearing comprises

a single outer ring having double raceway surfaces in a shaft direction and also having counter bores at both ends thereof in the shaft direction,

15 a first inner ring having a single raceway surface pairing with one raceway surface of this outer ring and also having a counter bore at an inner edge in the shaft direction,

20 a second inner ring having a single raceway surface pairing with the other raceway surface of said outer ring and also having a counter bore at an inner edge in the shaft direction, and

a plurality of balls interposed between said double raceway surfaces of said outer ring and each of said raceway surfaces of said two inner rings.

25 3. The bearing apparatus for supporting the pinion shaft according to claim 2, wherein a contact angle of said ball is set to be not less than 30 degrees and not more than 45 degrees.

30 4. The bearing apparatus for supporting the pinion shaft according to claim 2, wherein a radius of curvature of each raceway surface of said outer ring is set to be not less than 51.0% and not more than 52% of a ball diameter, and a radius of curvature of the raceway surface of each of said inner ring is set to be not less than 50.2% and not more than 51.2% of the ball diameter, respectively.

5. The bearing apparatus for supporting the pinion shaft

according to claim 2, wherein an outer peripheral portion of said each seal is fixed to the two counter bores of said outer ring, and comprises a lip portion at an inner periphery having a shape for contacting to each shoulder portion of said two inner rings, and being able to be opened towards the outside of the bearing.

6: The bearing apparatus for supporting the pinion shaft according to claim 5, wherein the lip portion of the seal arranged on a pinion gear side is compulsorily pressed to the shoulder portion of said inner ring by means of a spring ring.

10 7. The bearing apparatus for supporting the pinion shaft according to claim 1, wherein an air flow portion for communicating an inside with an outside of said bearing is formed in said seal arranged on a counter-pinion gear side.

8. A pinion shaft support apparatus, comprising:  
15 a pinion shaft having a pinion gear at one end and having a screw shaft portion at the other end;

a double row angular contact ball bearing with vertex of contact angles outside of bearing attached to an outside of a shank portion of said pinion shaft; and

20 a nut which is screwed and fixed onto said screw shaft portion of said pinion shaft and integrates said double row angular contact ball bearing with vertex of contact angles outside of bearing with said pinion shaft,

25 wherein said double row angular contact ball bearing with vertex of contact angles outside of bearing is filled with grease in a bearing internal space sealed with seals equipped at both ends in a shaft direction.